

## ABSTRACT

A porous inorganic substrate that may be used as a support, upon which biological, biochemical, or chemical reactions may be executed, is provided. A porous layer of the substrate is tinted with a colorant agent, and the porous substrate has at least about 15-20% less auto-fluorescence background relative to a conventional “white” porous substrate. The tinted porous layer provides improved signal to noise ratios that are important in detection metrics when performing biological or chemical binding assays. Once the porous layer is functionalized, one may immobilize probe molecules on or within the porous layer to create a microarray having a greater probe concentration and retention capability than conventional non-porous inorganic substrates, without suffering relatively high levels of auto-fluorescence and other detriments common to un-tinted porous substrates.